Instruction Manual

HI 9043 • HI 9044

Portable Microprocessor K-Type Thermocouple Thermometers

HANNA instruments®

www.hannainst.com

WARRANTY

All Hanna Instruments **meters are warranted for two years** against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. **Sensors and probes are warranted for a period of six months**.
This warranty is limited to repair or replacement free of charge.
Damages due to accidents, misuse, tampering or lack of prescribed maintenance are not covered.
If service is required, contact the dealer from whom you purchased the instrument. If under warranty, report the model number, date of purchase, serial number and the nature of the failure.
First obtain a Returned Goods Authorization number from the Customer Service department, then return the instrument with the Authorization # included along with shipment costs prepaid. If the repair is not covered by the warranty, you will be notified of the charges.
When shipping any instrument, make sure it is properly packaged for complete protection.

Dear Customer,
Thank you for choosing a Hanna product.
This manual will provide you with the necessary information for correct operation. Please read it carefully before using the meter.
If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com.
These instruments are in compliance with the CE directives.

PRELIMINARY EXAMINATION

Remove the instrument from the packing material and examine it carefully to make sure that no damage has occurred during shipping. If there is any noticeable damage, notify your Dealer or the nearest Hanna Office.

Note: Save all packing materials until you are sure that the instrument functions correctly. Any defective item must be returned in the original packaging together with the supplied accessories.

GENERAL DESCRIPTION

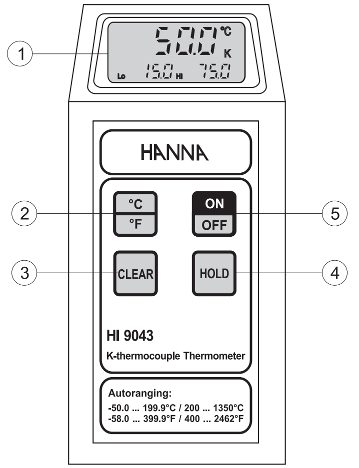
HI 9043 and **HI 9044** are microprocessor-based thermometers which allow temperature measurements using K-type thermocouple probes. The non-linearity of the temperature probe is linearized by the microprocessor.

Standard features include dual-level LCD for simultaneously displaying of the highest and lowest measured temperatures, display hold, selectable measurement unit (°C or °F) and resolution which automatically switches from 0.1° to 1° for temperatures above 200°C (400°F).

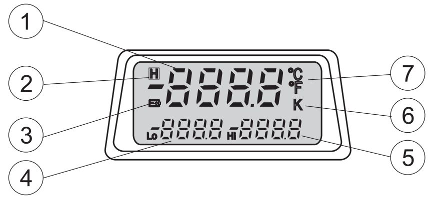
The meters are also provided with low battery detection and BEPS (Battery Error Preventing System), which turns the unit off when the battery is discharged avoiding erroneous readings caused by low battery level.

- **HI 9043** is supplied complete with a 9V battery and instruction manual.
- **HI 9044** is supplied complete with **HI 766E2** fixed temperature probe, a 9V battery and instruction manual.

FUNCTIONAL DESCRIPTION



1. Liquid Crystal Display
2. Measuring unit selection key
3. HI/LO values reset key
4. HOLD key
5. ON/OFF key



1) Current temperature value
2) HOLD indicator
3) Low Battery indicator
4) Minimum temperature value
5) Maximum temperature value
6) K-type probe indicator
7) Measuring unit, °C or °F

SPECIFICATIONS

Range (*)	-50.0 to 1350°C -58.0 to 2462°F
Resolution	0.1°C (up to 199.9°C) / 1°C (outside) 0.1°F (up to 399.9°F) / 1°F (outside)
Accuracy	±0.2% F.S. for 1 year, excluding probe error
Typical EMC Deviation	±3°C / ±6°F with **HI 766** K-Thermocouple probe
Battery Type Life	1 x 9V (IEC 6LR61) battery approx. 500 hours of continuous use
Probe	**HI 766** K-Thermocouple series • optional for **HI 9043** • **HI 766E2** fixed for **HI 9044**
Environment	-10 to 50ºC (14 to 122ºF); RH max 95% non-condensing
Dimensions	180 x 83 x 40 mm (7.1x3.3x1.6")
Weight	226 g (8 oz.)

(*) Range may be limited by probe. The range of **HI 9044** is limited to 900°C/1650°F by the fixed probe.

FACTORY RECALIBRATION

All Hanna thermometers have been accurately pre-calibrated at the factory. It is generally recommended to have all thermometers recalibrated at least once a year.
For an accurate annual recalibration, contact your dealer or the nearest Hanna Service Center.

OPERATIONAL GUIDE

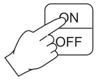
INITIAL PREPARATION

Remove the battery cover on the back of the thermometer. Unwrap the supplied 9V battery, connect it to the battery clip and reattach the cover.

Connect a K-type thermocouple probe to the meter.

Note: In **HI 9044**, the probe is fixed.

To switch ON, press the ON/OFF key on the front of the meter.



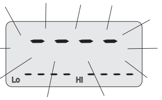
The thermometer will carry out a self diagnostic test routine, the LCD will show all segments for a few seconds (or as long as ON/OFF is held), followed by the percentage indication of the remaining battery life.



The thermometer then enters normal measurement mode.

If a temperature probe is plugged in, the meter displays the measured temperature automatically switching to the resolution suitable to the temperature range; i.e. 0.1° up to 199.9°C (399.9°F), or 1° above.

If no probe is plugged in, or if reading is over-range, the display shows flashing dashes.



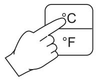
If a measurement is slightly over the range of the meter specifications, the display flashes the closest full-scale value.

To switch the meter OFF, press the ON/OFF key.

MEASURING SCALE (°C/°F)

The instrument is factory set to the °C scale, but measurements can be performed in either the Celsius or Fahrenheit scale.

Press the °C/°F button to select the desired scale.



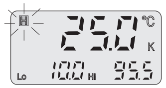
HOLD MODE

The HOLD function is activated by pressing the HOLD key.



The measured temperature is held on the display until HOLD is pressed again.

The "H" tag blinks on the display to indicate the HOLD mode.



Note: Although the display is frozen, internally the meter continues measuring and updating Hi and Lo values.

HIGH/LOW TEMPERATURES

The maximum and minimum temperatures are continuously monitored and displayed on the lower portion of the LCD.

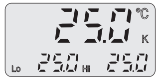


Note: When reading goes over-range, the Hi and Lo values display dashes until cleared.

CLEAR FUNCTION

Upon pressing the CLEAR key, the High/Low values may be cleared at any time during measurement and the current reading is assigned to the highest and lowest temperature values.

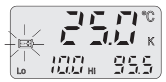




BATTERY REPLACEMENT

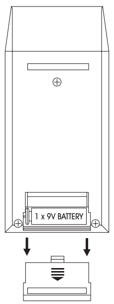
The instrument is powered by a 9 V battery and is provided with the Battery Error Prevention System (BEPS), which turns the unit off when a low battery signal is detected.

When the remaining battery level is less than 10%, a warning symbol blinks on the display to indicate a low battery condition.



It is recommended to replace the battery as soon as the low battery condition is detected.

Remove the cover on the meter's back by applying pressure in the indicated direction. Unplug the rundown battery and replace it with a new one.



Battery replacement must only take place in a non-hazardous area using a 9V alkaline battery.

ACCESSORIES

K-TYPE THERMOCOUPLE PROBES

with integral handle, 1 m (3.3') cable & mini-connector:

HI 766A	Roller surface probe, max 320°C/600°F
HI 766B	Surface probe, max 650°C/1200°F
HI 766B1	90º Surface probe, max 450°C/840°F
HI 766B2	Spring-loaded, surface probe, max 900°C/1650°F
HI 766B3	Spring-loaded, small surface probe with insulated shaft, max 200°C/390°F
HI 766C	Penetration probe, max 900°C/1650°F
HI 766C1	Ultra-fast penetration probe, max 300°C/570°F
HI 766D	Air probe, max 300°C/570°F
HI 766E1	General purpose probe, max 900°C/1650°F
HI 766E2	General purpose probe, max 900°C/1650°F
HI 766F	High temperature, flexible wire probe without handle, max 1100°C/2000°F
HI 766F1	Flexible wire probe without handle, max 480°C/ 900°F
HI 766TR1	Penetration probe, max 250°C/482°F
HI 766TR2	Penetration long probe, max 250°C/482°F
HI 766TV1	Pipe clamp probe, max 200°C/390°F

with detachable handle & mini-connector (to be used in conjunction with the HI 766HD probe handle):

HI 766PA	Roller surface probe, max 320°C/600°F
HI 766PB	Surface probe, max 650°C/1200°F
HI 766PC	Penetration probe, max 900°C/1650°F
HI 766PD	Air probe, max 300°C/570°F
HI 766PE1	General purpose probe, max 900°C/1650°F
HI 766PE2	General purpose probe, max 900°C/1650°F

grill surface probe:

HI 766B4	Grill surface probe with 70 cm (27.6'') cable (protected with stainless steel jacket), max 250°C/482°F
HI 7664B4S	Spare stainless steel sensor for HI766B4 probe

OTHER ACCESSORIES

HI 710009	Shockproof rubber boot, blue
HI 710010	Shockproof rubber boot, orange
HI 710020	Spare protective case
HI 721316	Rugged carrying case
HI 766EX	Extension cable for K-type probes
HI 766HD	Rugged thermocouple probe handle with 1m (3.3') cable fitted with mini-connector

CE DECLARATION OF CONFORMITY


HANNA instruments

CE

DECLARATION OF CONFORMITY

We

Hanna Instruments Italia Srl
via E.Fermi, 10
35030 Sarmeola di Rubano - PD
ITALY

herewith certify that the K-type thermometers:

HI 9043 and HI 9044

have been tested and found to be in compliance with EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC according to the following applicable normatives:

EN 50082-1: Electromagnetic Compatibility - Generic Immunity Standard
IEC 61000-4-2 Electrostatic Discharge
IEC 61000-4-3 RF Radiated

EN 50081-1: Electromagnetic Compatibility - Generic Emission Standard
EN 55022 Radiated, Class B

EN61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use

Date of Issue: 28/10/2002

A.Marsilio - Technical Director

On behalf of
Hanna Instruments S.r.l.

Recommendations for Users

Before using these products, make sure that they are entirely suitable for the environment in which they are used.

Operation of these instruments in residential areas could cause unacceptable interference to radio and TV equipment, requiring the operator to take all necessary steps to correct interference.

Any variation introduced by the user to the supplied equipment may degrade the instruments' EMC performance.

To avoid electrical shock, do not use these instruments when voltage at the measurement surface exceeds 24VAC or 60VDC.

To avoid damage or burns, do not perform any measurement in microwave ovens.

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